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Title : Niche Partitioning in Beaked Whales in the North-East Atlantic

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Abstract : Ecologically similar species are predicted to partition their niches to reduce potential competition. This hypothesis was investigated for beaked whales in the north-east Atlantic. Beaked whales form a guild of deep-water predators all of which have a similar ecology and, therefore, a high potential for competition if no niche partitioning occurs. Data from stomach contents analysis, stable isotope analysis, strandings patterns, habitat use and occurrence records were analysed for evidence niche partitioning between beaked whale species. In the north-east Atlantic, northern bottlenose whales (Hyperoodon ampullatus) and Cuvier's beaked whales (Ziphius cavirostris) preferentially consume similar-sized prey, feed at similar trophic levels and use similar habitats, and as a result have a high potential for competition. However, these two species are segregated spatially and temporally in the north-east Atlantic, which may reflect niche partitioning between these species in terms of geographic distribution. The remaining species, all from the genus Mesoplodon, preferentially consume smaller prey and feed at lower trophic levels. This suggests partitioning of beaked whale niches by prey preference to reduce potential competition between Mesoplodon species and both northern bottlenose whales and Cuvier's beaked whales. As a result, the Mesoplodon species can, and do, overlap with these two species in space and time. Within the genus Mesoplodon, there appears to be a mix of habitat and geographic segregation to reduce potential competition between the four species. Therefore, beaked whales in the north-east Atlantic conform to the hypothesis of niche partitioning to reduce competition between members of the same ecological guild.